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THE
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☞See advertisement on last page.

Poetry.

MOUNTAIN STREAMS.

What time the fern puts forth its rings,
What time the early throstle sings,
I love to fly the murky town,
And tread the moorlands bare and brown;
From greenest level of the glens
To barest summit of the Bens,
To trace the torrents where they flow,
Serene or brawling, fierce or slow,
To linger pleased, and loiter long,
A silent listener to their song.

Farewell, ye streets! Again I'll sit
On crags to watch the shadows flit;
To list the buzzing of the bee,
Or branches waving like a sea;
To hear far off the cuckoo's note,
Or lark's clear carol high afloat,
And find a joy in every sound
Of air, the water, or the ground;
Of fancies full, though fixing nought,
And thinking—heedless of my thought.

Farewell! and in the teeth of care
I'll breathe the buxom mountain air,
Feed vision upon dyes and hues
That from the hill-top interfuse.
White rocks and lichens born of spray,
Dark heather tufts and mosses grey,
Green grass, blue sky, and boulders brown,
With amber waters glistening down,
And early flowers, blue, white and pink,
That fringe with beauty all the brink.

Farewell. ye streets! Beneath an arch
Of drooping birch, or feathery larch,
Or mountain ash, that o'er it bends,
I'll watch some streamlet as it wends:
Some brook whose tune its course betrays,
Whose verdure dogs its hidden ways—
Verdure of trees and bloom of flowers,
And music fresher than the showers,
Soft-dripping where the tendrils twine,
And all its beauty shall be mine.

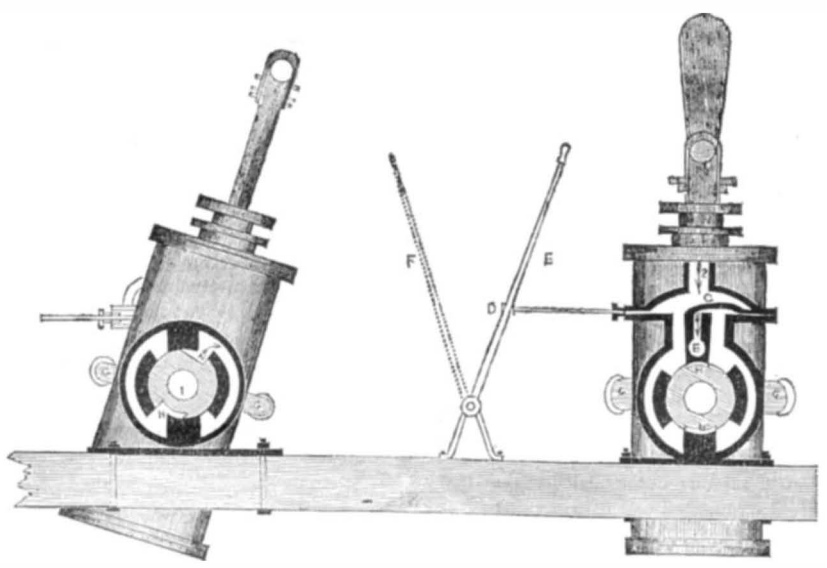
Ay, mine to bring me joy and health,
And endless store of mental wealth—
Wealth ever given to hearts that warm
To loveliness of sound and form,
And that can see in nature's face
A hope, a beauty, and a grace—
That in the city or the woods,
In thoroughfares or solitudes,
Can live their life at nature's call,
Despising nothing, loving all.

Sweet streams. that over summits leap,
Or fair in rock-hewn basins sleep,
That foaming burst in bright cascades,
Or toy with cowslips in the shades,
That shout till earth and sky grow mute,
Or tinkle lowly as a lute,
That sing a song of lusty joy,
Or murmur like a love-lorn boy,
That creep or fall, that flow or run—
I doat upon you every one.

For many a day of calm delight,
And hour of pleasure stol'n from night,
For morning freshness joy of noon,
And beauty rising with the moon;
For fancies fair and waking dreams—
I love ye all, ye mountain streams.

OSCILLATING ENGINE.

Figure 1. Figure 2.



This kind of Engine is now becoming general. The difference between the oscillating and reciprocating engine lies in the accommodation of the former to the motion of the crank by the cylinder being fixed to oscillate upon trunnions and thereby obviate, as will be observed, some gearing, they being more simple in the piston head connection. The objections against these engines have been the want of a sufficiently rapid escape of used steam and also their inability to apply the cut off, as may be desired to use the steam expansively, yet this objection is but one of degree, for while the crank is passing the centres the steam port in the cylinder is contracted and the piston is moving the slowest while the steam continues passing into the pipes G G, until there is an equilibrium of pressure between these pipes and the boiler, and during the quicker parts of the stroke the steam acts expansively on the piston, the admission into the steam chest being contracted by the partial closing of the valve C. Where fuel is plenty and cheap and the working of steam expansively would be of but little saving, this kind of engine from its simplicity will be found to be cheap, snug and durable. The first person who constructed an oscillating engine, is said to be Mr. Rennie of London. It is a kind of engine that is coming into general use in England and a few have been erected here. It is then an object of some interest to our mechanics, and accordingly we present two views of Biram's patent, Fig. 1 an end elevation when the engine is at half stroke or the greatest angle of oscillation, and Fig. 2 an end elevation when the crank is upon the centre. The same letters refer to like parts on both figures. S, fig. 2, (somewhat blurred in the engraving) at the downward pointed arrow, is the steam pipe. E, is the eduction pipe, and C, the slide valve. D, is a rod for moving the slide valve by means of E, a hand lever attached the rod. G G, are the pipes forming the communications with the corresponding divisions of the two steam chests. H H, are steam ports on each side of the cylinder forming a passage for the steam between the tops of the trunnions and bottom of the cylinder, each of full half the usual area of steam ports. These communicate alternately with each section of the steam chests by the oscillating motion of the cylinder, and if constructed according to the proportions in the engravings would be open equal to the area of the ports when the piston rod had moved one-third of its angular distance from the centre. The trunnions should be made to fit truly into corresponding sockets in the steam chest which form also the support of the cylinder. The steam chests are screwed on to bearings of metal or timber, and they should be made so as to be secured or tightened up from time to time upon the trunnions to preserve them steam tight as they wear.—The arrows show the direction in which the steam would move when the handle and valve are in the position shown in Fig. 1. The supply of steam would be reduced, or cut off, and the engine thereby eased or stopped by placing the handle more perpendicular and the direction of the engine would be reversed by inclining the handle towards the position of F. Generally to start the engine, it is only necessary to incline the handle one way or other, and to stop by placing it perpendicular, and this allows them to be set in motion and stopped at will, some distance from the engine by lengthening the rod D, making it very well adapted for working of mines. A fly wheel should be balanced to overcome the weight of the crank and neutralize the tendency of the engine to rest upon the bottom centre, whence it could not be started without the fly being set in motion first.

Remarkable Calculation.

A Mr. Abraham Hagaman, of Brighton, Monroe county, New York, performs multiplications of twelve places of figures, by twelve places, by the mental process alone, or, in his head, as the phrase is. Mr. H. has given his attention mostly to mathematical studies for more than thirty years, in solving abstruse and difficult questions in the various branches of mathematics, though it was but very recently that he commenced his mental operations. Having not long since seen published an account of a remarkable boy, in Vermont, who, it is said, could multiply five places of figures by five places, induced Mr. H. to try his mental powers: the result of which is seen in part above.

In Western Virginia, it is advertised that a man of family, who will move on, can have 60 acres of land for nothing. The settler to have the privilege of buying from the owner one hundred or more acres adjoining at one dollar per acre, payable in two three and four years.

At Norfolk a company has been formed to distill alcohol from tomatoes. The plan has been tested.

RAIL ROAD NEWS.

Sunday Disasters.

If any person will take the trouble to observe strictly the great proportion of accidents that occur on Sunday in proportion to the number that occur on other days of the week, he will become thoroughly convinced of a moral government of the universe for the benefit of the workingman. On last Sunday week quite a number of fatal accidents occurred on the railroads between Albany and Buffalo, where Sunday travelling is allowed.—Two men were killed by the collision of a passenger and freight train between Schenectady and Utica on the 30th April, and on that day between Utica and Buffalo, four different engines ran off the track. It is time the engineers and other hands on all the railroads had one day of rest in the seven, as well as other working people.

Air Line Railroad.

Various plans are on foot to defeat the construction of this Rail Road, chartered by the State of Connecticut, to construct a road nearly in an air line from New Haven through Middletown to Boston. The Legislature of Rhode Island, refused the right of way through a corner of that State, which may compel the "air line" to crook a little around the corner of Rhode Island, making the distance some four or five miles more than the straight route. The distance from New York to Boston by this "air line" Railroad is 211 miles, or 217, if compelled to avoid Rhode Island.

Ohio and Pennsylvania Railroad.

Active measures are now instituted to carry out the project of this Railroad. The citizens of Pittsburg have subscribed liberally and the Pennsylvanians are determined if possible not to let New York engross all the carrying trade of the West.

The citizens of Cleveland, Ohio, have authorised by an almost unanimous vote, the subscription of $100,000 to the stock of the Pittsburgh and Cleveland Railroad.

The Boston and Lowell Railroad Company have determined to reduce their fares, on and after the 1st of June, to fifty cents between Boston and Lowell and to corresponding rates for less distances.

Irish Engine.

The largest steam engine ever made in Ireland, was recently shipped at Belfast for the Pacha of Egypt. It is one of a number to be erected on the banks of the Nile for pumping water to irrigate the land. The cylinder is 62 inches diameter, with a ten foot stroke; and the pump will throw up 10,000 gallons of water every minute.

Mob Rockets.

We notice in the English Press that the greatest activity is manifested in the departments at Woolwich, in preparing rockets of a peculiar description, suitable to street warfare. These destructive missiles, when thrown amongst a mass of persons in confined places, are certain to produce the most frightful results. We understand that they are being prepared to meet the outbreak in Ireland, and a great quantity that are completed, will be shipped off for that country immediately; the same specimen of rocket was used with fearful effect in the recent Carlist contest in Spain.

Glass bottles are made with great rapidity. A workman, with the assistance of a gatherer and a blower, will begin and finish one hundred and twenty dozen quart bottles in ten hours. This is two and a half per minute In some establishments, the hands are restricted to two per minute, to prevent slighting the work.

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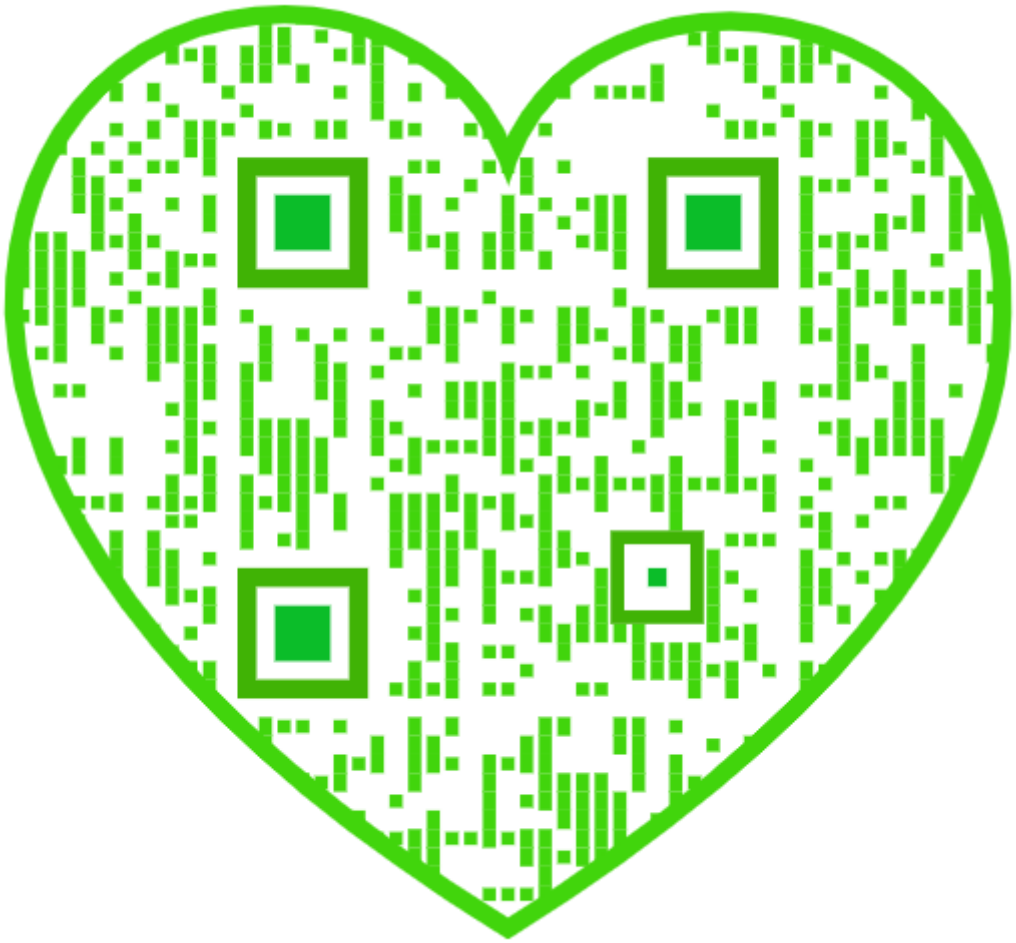

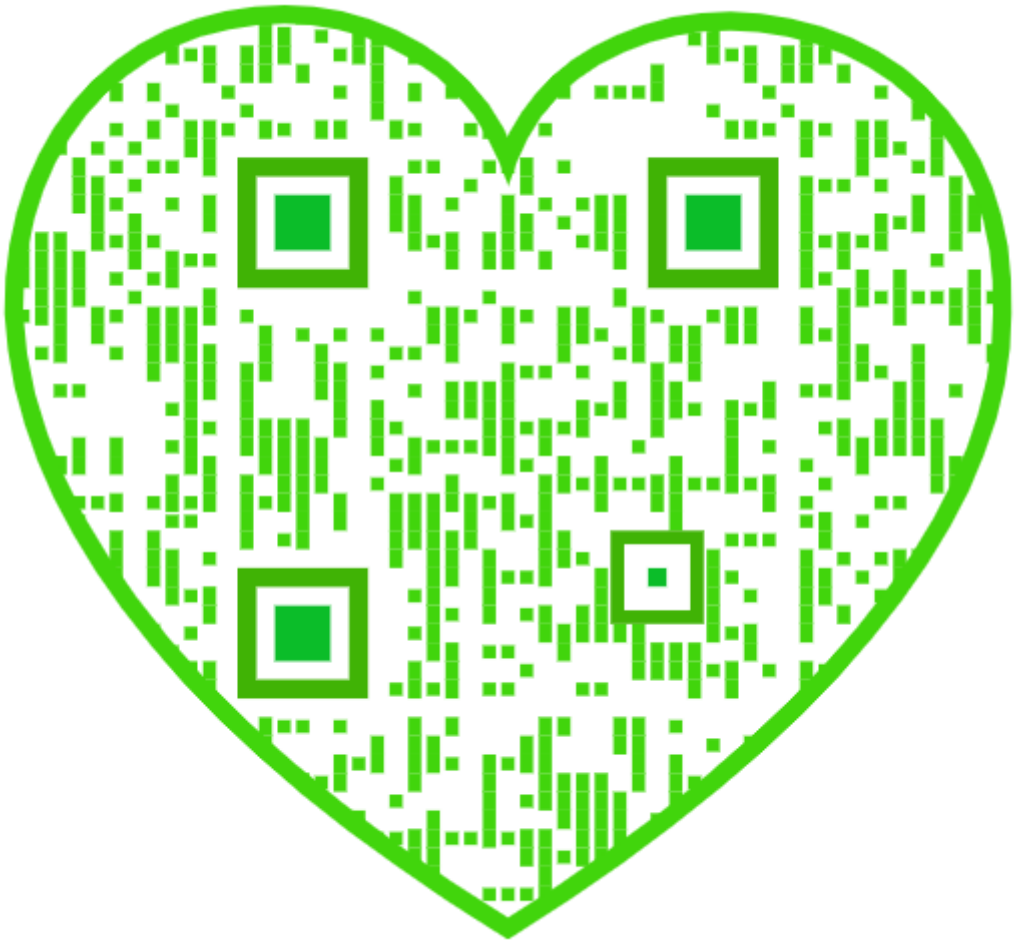

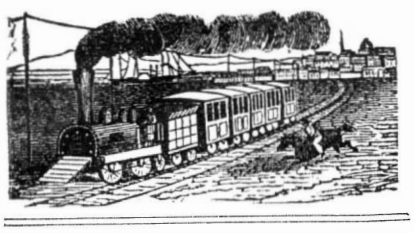

Singular Explosion of a Boiler.

Last week a boiler, ten feet long and four feet diameter, exploded in the machine shop of William H. Miles, in Maiden street below Front, Philadelphia. It was a perpendicular boiler, and burst outwards and downwards from the fire box. It was consequently projected upwards, and passing through the roof into the air, to the supposed elevation of one hundred feet, fell into Haydock street, in the rear. It took a course between the gable ends of two houses on that street, and fell within a few feet of Large's extensive manufactory. Several of the tubes fell out, and lodged on the premises of Mr. Rice, next door, while one or two others were thrown across the creek, a distance of one hundred and fifty or sixty feet. The distance the boiler was thrown from the place of its location, was not less than one hundred and forty feet. Its weight is said to be about four thousand five hundred pounds. At the time of the explosion, the proprietors say there was plenty of water in the boiler, with a very low head of steam. They attribute the accident to a very indifferent quality of iron used in the construction, or in the repairs of the boiler made some time ago, in the vicinity of the part that exploded. It has only been in use four or five months, and is said to have been new at the time it was put up.

The Laborer is Worthy of his Hire.

The Pottsville Emporium of last week makes the following very just and honest remarks in reference to workingmen : " It is announced that the Montour Iron Company have paid off all their workingmen, previously to setting their Rolling Mill at work again. We infer that the Company was largely in arrears to the men. This mean practice of borrowing the poor man's labor to make capital out of, is bad enough in individuals, but it ought to work a forfeiture of charter in all cases, when practised by corporations "

A merchant and postmaster in a small village three miles from Utica, in this State, had for years borne an excellent reputation for honesty and wealth, and in his integrity the utmost reliance was placed by a number of the factory operatives of New York Mills, from whom he had borrowed different sums of their hard earnings. A short time ago he failed and the poor operatives who honestly trusted in his integrity have lost many years savings—savings on which they depended for support in sickness or old age. Such things grieve us to the heart to hear of, more especially as no excuse but extravagance can be offered for the spending of these poor people's money.—It is not honorable to our character as a nation that such events should occur often, but alas, they are too frequent.

Clairvoyance.

The body of a young man named Bruce has been discovered by clairvoyance in Boston.—He had been missing for some time and a Miss Freeman, the clairvoyant, it seems mentioned some singular circumstances relative to his death, which induced his father to believe his son had been murdered, and he is about to institute some inquiries regarding the persons mentioned by the clairvoyant. There is something essentially wrong in placing confidence in such nonsense. It pains us to think that with all our boasted civilization, so much superstition should still exist. Various signs of fortune tellers are to be seen in this city, and a regular business is made by a female fortune teller who advertises her qualities with perfect consciousness no doubt, that the only way to humbug is to exhibit a bold front in the matter. Not long since a ghost appeared in the Western part of this State and gave information that he had been murdered by a respectable gentleman now residing in Orleans County, who has been obliged to publish a certificate of character to contradict the foolish report.

City of Hudson.

This beautiful little city of 6,000 inhabitants is situated on the East bank of the Hudson River, 116 miles from New York and is a place well worth visiting. It is delightfully situated on an eminence, commanding a fine view of the majestic river from which its name is derived, besides a beautiful landscape view of the surrounding country for a great distance. Manufacturing and Mechanical business is carried on there extensively, and everything about the City indicates a state of prosperity.

Among the Mechanical establishments are the Iron works of James F. Perkins, Esq., who does a large business in the manufacture of Turning Lathes, and makes a very superior article at a reasonable price.

The National Hotel kept by C. H. Miller, Esq. is the most accessible hotel for the accomodation of Steamboat passengers from this City, and is a house well conducted. The "National" is situated but a few yards from the River and is beautifully located for a summer retreat with a gentlemanly landlord to conduct it.

Hudson has been long celebrated for its beautiful ladies and although our flying visit did not permit us to see but a few, yet from the specimens which we were honored in seeing, we have no inclination to dispute the veracity of former judges.

Verdict of a Railroad Collision.

The Coroner's Jury returned the following verdict in relation to the fatal collision that occurred on the Railroad between Schenectady and Utica. " That Welch and Smith came to their death by a violent collision of two railroad trains, which met about one mile west of the village of Herkimer, about fifteen minutes past one o'clock P. M. this day. That said Welch and Smith, were passengers on the train going east, and were killed instantly by the concussion, and several other persons wounded; that we can attach no blame to any persons connected with the passenger train going east, as they were running in accordance with the timebill of the Utica and Schenectady Railroad Company; but in the judgment of said jurors, the said collision was the result of gross carlessness in the Agents of the said railroad company, in not giving proper and definite directions to their conductors and engineers, and particularly to the engineer and conductor of the freight train going west, and which came in collision with the passenger train this day; and also, in part to culpable carelessness of Joseph Armstrong, the engineer of the freight train."

Working Classes of France.

No greater error can be committed than that which exists in England, with regard to the working classes of France. The word *canaille* is distributed freely, without reflection, and without judgment. The workmen of Paris, especially are a very extraordinary class, for the most part possessed of education, and a certain degree of refinement of manners, which immediately place them on a level with the class above them, while in intellect, and above all in earnestness they are far superior. Foreigners are struck with the remarkable propriety of language and demeanor exhibited in their assemblies—not a word ever being permitted to escape which could wound the most nervous susceptibility, not a syllable of abuse against the order of things that has been overthrown—not a gesture which is not governed by good taste and feeling. " By tyrants we have been treated like brutes," said one of the orators, " by milder governors we have been treated as children—let us arise, then, and show that we are men, and claim our responsibility in the Government as well as those who are richer—not better—than ourselves."

Nothing like Big Words.

A good story is told in a paper, of an aristocratic old lady, who, being asked how she liked the dinner at Mrs. A's great party, replied :—" The dinner was explendid, but my seat was so promote from the nicknacs, that I could not ratify my appetite, and the pick led cherries had such a defect on my head, that I had a motion to leave the table, but Mr. ——, gave me some hartshorn resolved in water which bereaved me.

Inhalation of Medicinal Vapors.

M. Poggiale, Professor of Chemistry at the Military Hospital, Val de Grace, states, that inhalation of the vapor of aldehyde produces insensibility in a more prompt and complete manner than ether or chloroform. Several dogs have been rendered completely unconscious in the space of forty-five seconds, no accidents occurring. On one occasion the inhalation was continued during ten minutes, and the animals all spontaneously recovered.

Turpentine for Poison.

If any person should be stung by a bee, or other insect, rub some spirits of turpentine on the place, and the pain will nearly cease in one minute. It is said that the pain arising from the bite of a copper-head snake may be arrested in a few minutes, by the continued application of this article The effect of all poison is to contract the blood vessels and prevent a free circulation, the natural consequence is pain and inflammation immediately. Spirits of turpentine by their penetrating and expanding qualities, soon overcome the difficulty.

Marriage.

I never knew a marriage expressly for money that did not end unhappily. Yet managing mothers and heartless daughters, are continually playing the same unlucky game. I believe that men more frequently marry for love than women, because women think they will not have a better chance, and dread being dependent. Such marriages, no doubt, sometimes prove comfortable, but a greater number would have been far happier single. If I may judge by my observations of such matters, marrying for home makes that home a very tiresome one.—*Mrs. Child.*

Providential Escape from Death.

Capt. Josiah Cooledge of Cambridge, Mass. lately had occasion to descend a well on his premises; getting nearly to the bottom he retraced his steps for the purpose of obtaining a lamp. While preparing to make a second descent, the well which was forty feet deep, suddenly caved in, he standing on the platform directly over it, fortunately he escaped without injury.

Washington's Library.

Some days ago a paragraph began to circulate, alleging the sale of Washington's library to a Mr. Stephens, for $5,000. Subsequently an authorized denial by Mrs. Jane C. Washington, appeared. But now the Washington correspondent of the Journal of Commerce reiterates the original paragraph, with the explanation that the books which have been sold, are those bequeathed by Gen. Washington to Col. George C. Washington of Maryland—three thousand volumes—and that they are destined for England. Many of the books were presentation copies, with the autographs of their authors.

American Institute.

Some of our City papers say that this great Institute has magnanimously made the following appropriations:—

In seven years, awarded 175 gold medals, 241 silver cups, 1109 silver medals, $560 in money, 722 volumes of books, and 2,947 diplomas. In the same time, the well paid patriots who manage the Institution have eaten 98,987 oysters, 420 turkeys, 1987 chickens, 313 ducks, 70 bushels of potatoes, 21 calves, 9 beeves, and an immense amount of vegetables. They have drank 40 dozen of champaign, and between 3 and 400 gallons of other liquors. The whole expense of both branches of *economy* were, we are informed, drawn from the same purse.

The Navy.

The Naval Committee in the House of Representatives have reported a bill for building twenty gun brigs, of not less than 450 tons burthen each. Half the number it is proposed shall be built by contract, in which the Government shall not interfere, and half at the Navy Yards under the direction of the Commodores, between whom and the private contractors there are always wide differences of opinion upon the question of construction.

The same Committee have also reported a bill to establish a retired Naval List.

Mowing Machine.

The Ohio Cultivator, says that " there is likely to be a spirited competition between the advocates of McCormick's and Hussey's Reapers in Champaign county during the coming harvest; as a large number of both kinds have been contracted for by the spirited farmers of that region."

A reaping machine of Mr. Ketchum of this State has cut down ten acres in one day. Every farmer should stock his farm with simple, strong, and effective labor saving machines. They are just as essential to his prosperity as good animals. We never knew a successful farmer, who was fond of showing off a handsome harness or carriage and who had an old ricketty wagon and no horse power thresher or circular saw.

Adams & Co's Express.

The faithfulness and promptness which characterizes all the transactions of this express line are worthy of note. We are under deep obligations to them for the numerous civilities which they have bestowed upon us from time to time, and for the care and alacraty with which every kind of business is executed which is entrusted to their care They have faithful and accommodating agents, and from a long experience in the Express business, they have become thoroughly acquainted with the whole routine of it.

Currents of the Ocean.

The George and Martha, at New Bedford, reports April 9, lat. 24 20 N., lon. 54 30 W., picked up a bottle with a note in it, which was thrown overboard Dec. 27, in lat. 34 27 N., lon 37 45 W. from bark Maritius bound to London

Telegraph Improvement.

The Louisville Journal states that Barnes and Zook's telegraph improvement has been perfectly successful and that it has been daily " sending messages between Louisville and Nashville." We should like to know the distinguishing points of this invention.

During the Protectorate a Church of England clergyman, warmly attached to the house of Stuart, was wont to use the following prayer, which, by proper emphasis was rendered significant enough: " Oh, Lord, who has put a sword into the hand of thy servant Oliver, put it into his heart also—to do thy will."

A scorpion, when he finds himself enclosed and no way left to escape, will turn his tail round and sting himself through the head; and it is remarkable, that this is the only animal in creation, man excepted, that can be made to commit suicide.

Last year 1,419,283 copies of the Bible were issued by the British and Foreign Bible Societies—400,000 more than in any year before, excepting 1845. The amount of money received was greater than ever before, amounting to £117,440, 9s. 3d.

The ship Samuel Russel, arrived at this port last week from Canton, and has made the swiftest passage on record. In one run of twenty-three hours, she made three hundred and eighteen miles.

When a witty English government defaulter, after his recall, was asked on his return home, if he left India on account of his health he replied, " They do say there's something wrong in the chest."

The Scottish language is particularly rich in diminutives. Thus, man, manny, manniky, bit manniky, wee bit manniky, little wee bit manniky.

It is calculated that £65,000,000 sterling are annually expended in the United Kingdom in intoxicating drink—ten times the usual amount of the English poor rates.

Where is the comet of 1556, that was to appear in March, 1848. Has M. Arago dispelled the wanderer in the maze of revolutionary business.

Archbishop Leighton was wont to say, " I prefer an erroneous honest man before the most orthodox knave in the world."

Punch says that when a good measure is introduced into the House of Commons the Ministry are sure to *carry it out.*

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For the Scientific American.

Mosaic Tapestry, Copying Paintings, &c.

We will proceed to describe the second part of the invention, which relates to another mode of manufacturing carpets, rugs, and other napped fabrics, which differs from that before described, *but is capable of being so worked, as to produce very ornamental surfaces, and may be made to resemble tapestry and highly finished paintings, depending on the taste of the person who works the pattern* as will be hereafter explained.

FIG. 5.

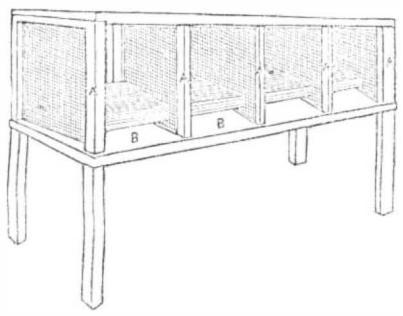
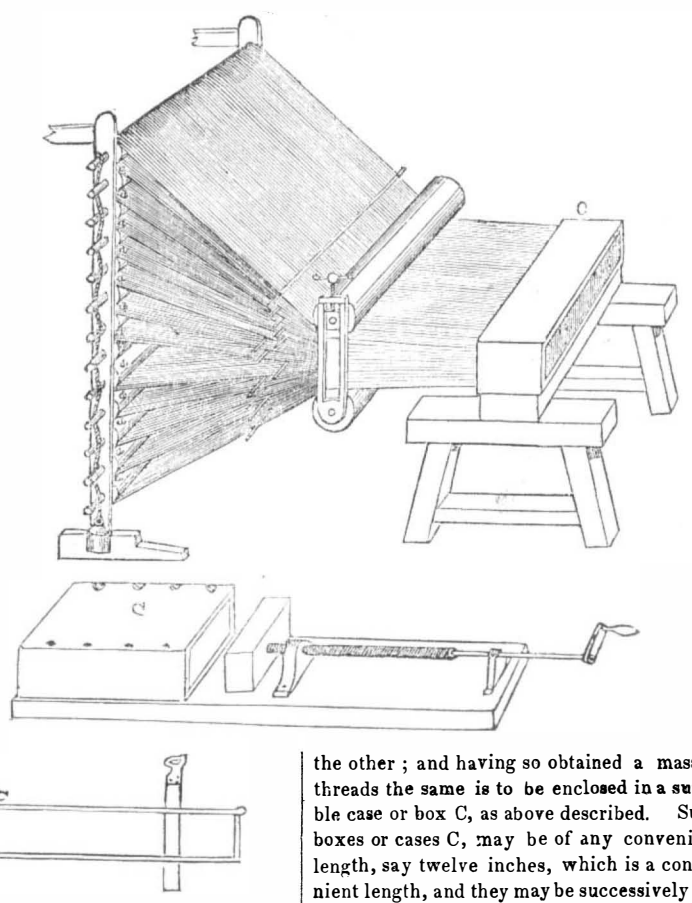


Fig. 5 (which was inserted last week by mistake,) represents a figure or apparatus suitable for working the pattern when performing the second part of the invention. A A A A A are quadrangular frames affixed on the board B B. Over each of the end frames A, is evenly stretched canvas, such as is used for *worsted work*, in such manner that the canvas at each end, shall be stretched to coincide one with the other as nearly as possible. The person who works the pattern is to proceed as follows;—

By means of a needle he draws the worsted, wool, or other thread through a hole or mesh in the canvas at one end, and through a corresponding hole in the canvas in the other frames A, commencing the work at the lower corner hole, and working successively through each hole of the lower rows of the surfaces of the canvas; then the next above, (taking care that the threads between the frame A, lie even and smooth, and are drawn equally tight,) and the operation is to be continued till the threads have been passed through all the holes when there would be a long quadrangular mass of threads, which is to be encompassed with a box or case C, (see Fig. 6.) open at both ends; and having so encompassed and secured the mass of threads, the same may be cut away from the canvas or fabric, and a piston or rammer inserted into the box or case C, which, fitting closely on all sides, will, when desired, force out portions or lengths of the yarn, in order that the same may be cut off after it has been combined by cementing it into a fabric, as will be hereafter more fully described; and the ends of the fibres in the box C, against which the ram is to press, should be cemented to the ram and permitted to dry before commencing to force out the mass of yarn by the ram.

Above, we have given our readers an account of the mode of working, without reference to the pattern: and we shall now proceed to show how a design or pattern may be worked in the frame, and subsequently transferred and subdivided into a multitude of surfaces, or portions of surfaces. We would first remark, however, that the canvas or fabric used on the frames A should be fine or coarse according to the degree of fineness of the yarn used, whether of worsted, wool, cotton, or other fibrous materials or mixtures thereof and the pattern or design is to be worked or executed with the needle, by counting the meshes, and drawing through colors according to the order of the pattern set before the person performing this part of the work, drawing the thread or yarn through each of the frames, as has been above explained: or it may, in some patterns, be performed by marking the canvas. Thus, supposing that the pattern to be produced was a red animal on a white ground, and that the shape of the animal was marked on the canvas, the person working would continue to draw white yarn through the canvas so long as the lower part of the frame was to receive the ground, then with white and then with red, according as the portions of the row of meshes or holes, of the canvas across from side to side was ground or pattern, and so on till all the holes were worked through, and the pattern completed. Having performed this operation, he would surround the warp with the box or case, C, as above explained; the boxes or cases, C, being formed in parts capable of being put together readily, by screws or otherwise. We have chosen this simple pattern in order to give a clear description of this part of the mode of working as practised by the ingeous inventor, but from the foregoing description a person will readily be able to perform other patterns, of varied degrees of intricacy *depending on the taste of the design*, which should be drawn on paper such as is now used in working worsted work on canvas; that is, by having the colors in small equal-sized squares, as is well understood, and consequently forms no part of the present contrivance, and then, by counting the meshes or interstices of the fabric, draw in threads of the color required, and as may be marked in the design paper. Or in some cases the pattern may be marked on the canvas. When then the frames are full, a case C is applied, just sufficient to embrace the mass of threads and retain the same closely together in such manner that in forcing the threads through the case in which they are included, they will be prevented getting out of the correct position. Hence each successive portion or slice cut off from the end of the case, *will be a repetition of the same pattern, which being combined together will produce a carpet or rug, or any other napped fabric*, depending on the nature of the fibrous materials employed, and the mode of getting up the same.

Figure 6.



There are other methods by which masses of yarns or fibres may be obtained within cases or boxes C, and worked therefrom according to the invention. We will now explain two other modes, slightly differing from each other and from the one above explained; but by both the object of this part of the invention may be obtained, whereby a mass of yarns or threads, or such like combination of fibres may be produced in masses, in suitable cases or boxes, and allow of *a succession of cuts or slices being successively taken therefrom in order to produce successive surfaces, or portions of surfaces, which being cemented before cutting, will form the nap of fabrics.*

Fig 6, represents a perspective view of an apparatus or machine wherein a number of warp rollers *a a a*, each having wound thereon threads of any suitable fibre, according to the fabric desired to be produced, the warp rollers being equally weighted. Each layer or warp is made fast to a rod, which keeps the layers of threads separate (as shown in the Fig.,) and correctly placed, one warp above the other; and having so obtained a mass of threads the same is to be enclosed in a suitable case or box C, as above described. Such boxes or cases C, may be of any convenient length, say twelve inches, which is a convenient length, and they may be successively cut from the body of warps, taking care that before cutting off one box or case, or more, securely encompass the body of threads, in order to hold them securely, the cut or slice being made between the cases or boxes by a sharp thin knife, or such suitable razor-like instrument. Each of these boxes or cases C, will then be worked off by having suitable pistons placed, and forced through them, as above explained, or in cases where the length of nap will allow of it, the cases or boxes C, may be made of parts, each only as deep as the intended nap. Then, in order to cut off each successive layer or slice, Gutta Percha, India-rubber, or other suitable cement should be evenly spread over the external ends of the body of warps. In order to cement all the ends together, a slice and case or box C, may be cut off, starting with several such narrow cases, and applying one around the yarn as one is cut off, in order to retain the nap secure, the cases C being hinged or otherwise.

GILROY.

Damp Winds of Buenos Ayres.

To the north of Buenos Ayres is a very marshy district, while to the south-west lies the great chain of the Andes, separated only by the dry plains of the Pampas; and according as the wind blows from one or the other of these quarters, the effects are very remarkable. By the time the north wind reaches the city, it has become so overcharged with moisture, that everything becomes instantly damp, books and boots become mildewed, keys rust even in the pocket, and good fires are necessary to keep the apartments dry. The effects produced in the human body by this humidity are a general lassitude and relaxation, opening the pores of the skin, and inducing great liability to colds, sore throats, rheumatic affections, and all the liabilities of checked perspiration. As a safeguard against this state of things, the inhabitants wear woolen clothing even though the weather be very hot; and although Europeans would prefer wearing cool cotton clothing in such a climate, they soon find that the native inhabitants are right in the plan which they pursue. This damp wind of La Plata seems to affect the temper and disposition of the inhabitants. The irritability and ill-humor which it excites in some of them, amounts to little less than a temporary derangement of their moral faculties. It is a common thing for men to shut themselves up in their houses, during its continuance, and lay aside all business till it has passed; whilst among the lower orders it is always remarked that cases of quarreling and bloodshed are much more frequent during the north wind than at any other time. In short everything is deranged, and everybody lays the fault to one source, 'Senor es el viento norte!' 'Tis the north wind, sir!' Even murderers are said to lay to it, the blame of their foul deeds. No sooner, however does the South wind, blowing from the dry and snowy summits of the Andes, than health, comfort, and peace are restored.

Physicians attribute, and with reason, the prevalence of many diseases to these different states of the atmosphere. Thus moist air gives rise to bilious affections, and in some localities and seasons, to agues; dry sharp airs again, are inimical to all disorders of the chest and lungs. An irritable state of the nervous system, and even temporary insanity, may also occur from extreme conditions of the surrounding atmosphere.

American Rural Life.

Many thousand farmers in New England and other states, rear large families, pay all their debts and taxes promptly, live independantly, well clothed and comfortably housed and provided for, and lay up money, on farms of fifty acres. With them there is a place for everything, and everything in its place.—Their horses and cattle, tools and implements are attended to with clock-like regularity. Nothing is put off till to-morrow, that can be done to-day. Economy is wealth, and system affords ease. These men are seldom in a hurry, except in harvest time. And in long winter evenings, or severe weather, which forbids employment out doors, one makes corn-brooms, another shoes, a third is a carpenter, cooper, or tailor; and one woman spins, another weaves and another braids "Palm leaf hats." And the families thus occupied are among the most healthy and cheerful in the world.

A rural life is not only the most happy and virtuous, but the most comfortable. Rural villages combining all necessary manufacturing employments, is the very soul of our Republic. A machine compact, cheap and simple for spinning in a family to equal the throstle or mule, and a loom for weaving like Claussen's in every farm house, would soon make an end to large cities. What does the most wealthy man get for all his riches but food and clothing, and could clothing be made by some cheap and simple machine in every family, what great resources would every farmer of fifty acres possess within his own household.

French System of the Organization of Labor.

The Government is to take possession on its own account, of all establishments about to suspend work, the present proprietors preserving their rights, which are to be converted into bonds bearing interest, secured on establishments, and reimbursable in money. The persons employed in these establishments are to be put on a new footing. The workpeople will form an association, will elect the directors of the works, and will fix the amount of wages, or the share to which labor is entitled in the profits. The share being determined, the collective wages will be distributed among the workmen individually, by the Council of *travailleures*, according to proportions open to discussion, but which the Government Commission thinks ought to be in equal parts. The produce, after deduction of the wages, is to be formed into a general fund, to be divided into four parts First, a quarter for the sinking fund of the capital belonging to the proprietor with whom the state made the bargain. Second, A quarter for the establishment of a fund to be set aside for the support of old men, the sick, wounded, &c. Third. A quarter to be divided among the workmen by way of bonus. Fourth. A quarter for the formation of a reserve fund. Beside this M. Louis Blanc declares that it will be necessary to unite workshops belonging to the same branch of industry, but placed in the same conditions; and to guarantee the interests of the consumer as regards the quality, and the lowest possible price of the produce.

A strange accident has occurred at Cardiff, Scotland. A schooner lying in one of the docks was blown almost to pieces by her cargo of coals having generated a gas which ignited from a candle which one of the crew was using. Several men were killed.

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New Inventions.

Novelties in Steam Engines.

It is well known that a number of the engines that are now in operation both in France and Britain, have double cylinders, one a high pressure non-condensing and the other a larger cylinder to use the escape steam from the high pressure cylinder and then condense it. These have been highly commended by some of the European Journals, but after a full examination of their merits, we have come to the conclusion, that they are not so good as to apply but a single large cylinder and use the steam expansively. The single cylinder engine is certainly less expensive and more simple—important considerations. We have seen McNaught's and Joice's double cylinder engines and although beautiful and excellent pieces of mechanism, yet our partiality is for the single cylinder. For some purposes, however, the double cylinder would be good, or the using of the escape steam from a high pressure non-condensing engine and applying it to propel machinery. We have been informed lately of an instance of this kind which must be of considerable benefit to those who have applied it and all others who may do so. It is the using of the exhaust steam from a high pressure cylinder to propel a simple and compact rotary engine. Messrs. Wm. Zimmerman and F. C. Walker, mechanics, of Quincy, Illinois, have done this, and when we take into consideration that some rotary engines are so simple and can be built so cheap, especially a small one (and a five horse power is the largest that should be built,) we will at once perceive that the application of Messrs. Zimmerman and Walker is good and ingenious, and worthy of a patent, if our laws can grant one.

Improvement in Daguerreotyping.

Mr. J. Jones, of Baltimore, has made an improvement in the art of Daguerreotyping, which is very valuable. He fixes his impressions so permanent upon his plates by some process as to render them almost as durable in surface as if they were enamelled.—They can be carried perfectly safe to any distance without being covered with glass and may be rubbed with a wet cloth without scratching the impression or rubbing it off.

New Artificial Hand.

Messrs. Kretchmar and Gildea, of Dock st., Philadelphia, have invented a new Artificial Hand, which has been represented to us as not only neat and very beautiful but a very excellent substitute for the loss of the natural one. The frame is made of steel and the various bones substituted by steel wires and plates having very flexible joints. A small lever connects one joint with the other and the lowest joint of the fingers are connected with a double lever on the palm of the hand. When the palm is closed the fingers move like the natural hand. This apparatus can be fitted to any person who may be so unfortunate as to need it. There is a small lever by which the wearer may choose either the index or middle fingers at will, separate from the others, as may be desired.

Engine Trumpet.

Mr. Elbridge Webber, of Gardiner, Maine, has invented a trumpet which can perform some variations, to be driven by wind or compressed air. It can also be applied to locomotives by a little alteration of parts, and this is what some good people in Pennsylvania desire in order to get rid of the screeching whistle. A caveat has been filed for the invention.

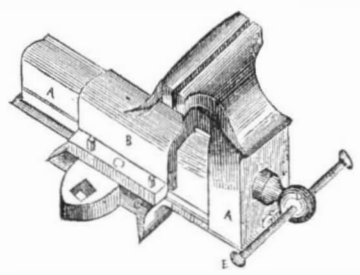
Counter-sunk Rivets for Pails.

Mr. Theodore Zinck, of this city, has made some beautiful hoops for pails, &c having all the rivets countersunk. The application to hoops for pails makes them more beautiful and neat, and therefore the improvement is an important one.

Extraordinary Musical Mechanism.

An instrument called the Antiphonel, has been introduced to the public of London, by Mr. James Smith of Lord Street, enabling any person to play any kind of music, grave or gay, on the organ, piano, seraphine, &c., to which the new article is affixed. It cannot be described in words; it must be seen to be appreciated; and yet the following from the Standard is a pleasing and surprising contrivance:—"The whole machine is but two feet long, and four inches wide. On the top is a flat metal surface, pierced across its width in the centre with a series of small openings which admit through them a small number of metal points, rising a little above the metal plate These points are the extremities of small levers encased below, and communicate with the keys, so that any point being pressed down, presses down the corresponding key, and produces the desired note. The 'music books,' if we may so call them, are a succession of small blocks of wood which are forced onward along the metal plate. On the under side of these blocks are inserted steel pins, resembling those on the barrel of a hand organ, and these, as they come in contact with the metal points, produce the tune. The blocks are moved along in lively music by a small crank handle. In slow or sacred music, another small handle, moving like that of a pump, is used, by which the notes may be maintained, when required, to any length. When one block has passed over the plate, another containing the continuation of the piece, or succeeding parts of a tune, may be introduced, and repetitions may as readily be accomplished. The blocks may be had, set to any given tune or piece of music, and are sold at so much per foot, so that any one may now order a mile of music. Mr. Smith, for our gratification played on the harmonium a variety of airs, quadrilles, hymns, &c. with great effect, by merely using one or two of the handles, and pulling the wooden blocks under a small roller, which presses them against the polished metal plate before alluded to. The machine itself passes the blocks along by means of a small cog wheel, working on a thin rack attached to each block."

Stiven's Parallel Vice.



The Vice is bolted directly to the Vice board by two snugs cast on the sole C, which is flanged on the under side, and abuts against the edge of the bench. One of the jaws B, is bolted to the sole and under it the other jaw A A, slides upon the flat surface of the sole. The upper side of the slide A, which is hollow, has a square feather upon it which corresponds to a groove in the inside of the fixed jaw piece B; the slide A, is also furnished with strips along the bottom edges which likewise slide against the sole plate C. Thus the piece A is held steady, and is moved along the sole by means of the screw and lever D E; this screw being confined in a collar at the neck, and projecting into the interior of the slide A A, works in a nut attached to the sole plate. By this means the moveable jaw may be slidden along the sole, and screwed up against the fixed jaw B, holding firmly any object placed between them. The main advantage of this Vice consists in the parallel movement of the sliding jaw, without the work being marked. It is also stronger and likely to be more durable than the common Vice, in consequence of the direct action of the screw and its being completely protected from all dust and filings.

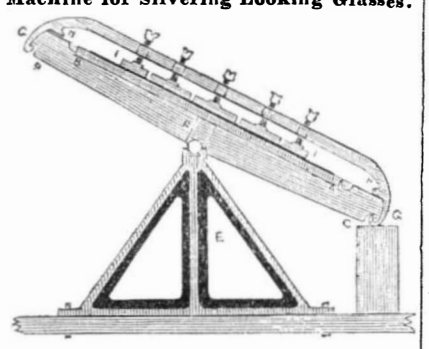
Transferable Slips.

Messrs. Robinson & French, of Andover, Mass., have invented an article called Transferrable Slips or Soles, for boots, shoes and slippers. They are made of thin leather with a steel spring on the heel, and are to be put into the inside of the boot or shoe.

New Looking Glass.

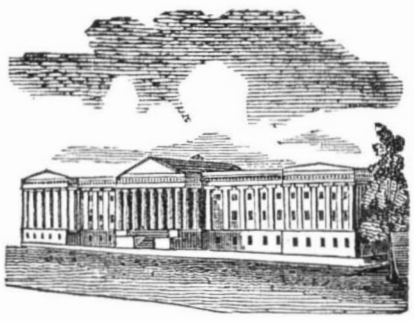
A new looking-glass of a highly ingenious construction, has lately been invented in England. It enables any one using it to have a full view of the back of his head. The mechanism is exceedingly simple; rods of brass are placed parallel to the upper portions of the glass from the handles; then, from the centre of this at the top, a curved piece turns on a swivel, to which piece a small oval glass is attached, and this, being brought round at an angle with the larger glass, affords the view of the back part of a figure standing between the two in the same manner, but with far more truth than we find by taking one glass in the hands to observe our reflection in another. Moreover it leaves the hand at liberty to use at will.

Machine for Silvering Looking Glasses.



The common silvering table is a slab of marble ground to the most perfect degree of evenness, and placed in a frame so that a certain degree of obliquity can be given to it.—All around the margin is a gutter, through which, at one corner, a hole is made so as to allow the escape of the mercury when the plug that closes the hole is removed. It is this corner which is the lowest when oblique position is given to the table, in order that the mercury may be run to it from the other parts of the gutter. On the silvering table is spread a sheet of tin foil of the same size as the glass, or rather a little larger; a fluid amalgum of tin is then poured on it, and spread over its surface with a brush till it adheres; more mercury is then poured on till it stands about a quarter of an inch deep over the tin foil. The plate of glass, having previously been made quite clean, is then slid gently and steadily from a sheet of paper, just dipping below the surface of the mercury, but avoiding to touch the tin foil for fear of tearing it. When the glass is fairly over the tin foil, the table is placed a little oblique by means of a rack; the mercury now runs into the gutter, and the glass subsides on the tin foil. The glass is then pressed tightly against the foil by means of the screws, as seen in the engraving. By this pressure at the end of 24 hours the silver is so firmly adherent to the glass that the screws may be removed, and the glass is then raised up in a sloping position to allow the mercury to drip off. The silvering then becomes quite hard. The drawing above is a section of the machine. A B, the stone slab; C D, its frame containing the usual channel for the mercury; E, the support on which the bed is turned; the middle strengthening bar F, which serves for an axis, is placed a very little on one side, to make the side C, at which the slope is given, always preponderate, that side usually resting on one or more screws, by which it is lowered or raised again. The upper and under sides of the frame C D, are made quite parallel, to fit the hooked ends of the long clamps G G, which extend from one end to the other. The clamps are furnished with little plates H H; these project inwards for the clamps to stand and slide on when the screws are loosened.—They are also, with the under hooks, made sufficiently wide to prevent the clamps from falling on one side. A sufficient number of these clamps I I, are ranged over the bed about one foot apart and the screw holes in one clamp are made to be opposite the intervals in the next, in order to distribute the pressure more equally over the surface of the glass. The clamping blocks are of wood faced with leather. When the glass is being put on, the clamps are usually drawn to one end of the bed or otherwise removed out of the way.

Melt together in a crucible, three parts of copper with one of zinc; the alloy will be found to be the common brass.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 2, 1848.

To Andrew McCleary, of Philadelphia, Penn., for improvement in Spark Arresters. Patented May 2, 1848.

To William Van Anden, of Trenton, N. J. for improvement in Rivet Machines. Patented May 2, 1848.

To Horace H. Day, of Jersey City, N. J. for improvement in Gutta Percha Fabrics in imitation of Patent Leather. Patented May 2, 1848.

To Morgan Loomis, of Worcester, N. Y., for improvement in Smith's Bellows. Patented May 2, 1848.

To James Babbitt, Boston, Mass., for improvement in machinery for separating Gold. Patented May 2, 1848.

To Elisha Ayer, of Norwich, Conn., for improvement in Locomotive Steam Boilers.—Patented May 2, 1848.

To William A. Kentish, of New York City, for improvement in Anchors. Patented May 2, 1848.

To John R. Warrington, of Damascoville, Ohio, for improvement in Corn Shellers. Patented May 2, 1848.

To Thomas W. H. Moseley, of Columbus, Ohio, for improvement in Sash Fasteners.—Patented May 2, 1848.

To Gardner Chilson, of Boston, Mass., for improvement in Hot Air Furnaces. Patented May 2, 1848.

INVENTOR'S CLAIMS.

Machinery for Inclined Planes.

By George Escol Sellers, of Cincinnati, Ohio. Improvement in machinery for ascending and descending inclined Planes. Patented Nov. 13, 1847. Claim.—What I claim as my invention and desire to secure by letters patent is the method substantially as herein described of increasing the tractive power of the Locomotive Engine by the resistance or gravity of the train to be drawn thereby, by connecting such train with the driving wheels that grip the central rail as described. I also claim the connecting of the wheels that gripe the central rail, and which act thereon as drivers with a spring, substantially as described, whereby the required adhesion can be obtained when the locomotive is descending or ascending an inclined plane without a train of cars, or when by accident or other cause, the resistance or gravity of the train cannot be employed for this purpose. I also claim the forming of the connection between the griping wheels and the train by means of two opposite toggle joint-levers, connected with the levers of the griping wheels substantially as described; whereby the train is made to act on the griping wheels either in ascending or descending inclined planes, as described. I claim the connecting of the two griping wheels with the frame of the locomotive by means of levers substantially as described, whereby the locomotive is left free to vibrate between the track rails whilst the griping wheels are acting on the central rail, thereby relieving the central rail from being affected by the surging of the locomotive from side to side. And finally I claim the combining of the griping tongs with a railroad car or cars, by means of the arms of its levers, and by chains or jointed rods substantially as described, whereby the pull of the cars, on running down an inclined plane, in the event of the breaking of the connection with the locomotive or of the cars with each other, will act on the tongs and cause them to gripe the rail, as described.

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NEW YORK, MAY 13, 1848.

A Caveat.

This is the name of a document filed in the confidential archives of the Patent Office. It is for the purpose of protecting the discovery of a new invention and allowing the inventor time to make experiments for the purpose of perfecting the same. The inventor must pay twenty dollars into the Treasury of the United States, and set forth his design, its purposes, principle and distinguishing characteristics. If application is made within one year, after the filing of said caveat, by another person for a patent for the same discovery, the Commissioner of Patents informs the person who filed the caveat of this fact, and if he wishes to avail himself of the benefit of his caveat he must make his application for a patent within three months after he gets the notice from the Commissioner. If he does not do this, his caveat fails to be of any benefit.

If a caveat has been filed by one person and application made for a patent for an invention of the same nature by another inventor, that is, if their claims interfere with each other, "like proceedings may be had in all respects as in the act of Congress made and provided for interfering applications."

This is the law of 1836, section 12, and it is perfectly plain that a caveat filed must distinctly claim something. If it claims nothing it must be void. Some think that a vague description in a caveat is enough, but if this was so, there would be a most extended field for patent frauds. Unless a caveat is perfectly plain and clear and agrees in its main features with the specification for the *Patent* of the caveat filer, it must be void. If it were not so, all that a person of the most obtuse, but low cunning intellect would have to do, would be to file a caveat for some invention of which he heard some vague reports, and wait patiently until some other person completed the invention, when he might go and see it—construct the same exactly in all its parts and then take out a patent himself and prevent the right inventor from getting one.

The decision of a Board of Examiners in the Patent Office in favor of any one of the interfering applicants for a patent, does not preclude the contesting of the validity of a patent in any judicial Court. A caveat which only describes principles and combinations known before, must be useless, and no doubt many are lodged that would be utterly worthless if contested. No notice is sent to those who make application for a caveat, whether the description in the caveat is new or old.—The decision of the Commissioner is wisely reserved by law in this case to the application for the patent. Those therefore who would avail themselves of the benefit of the caveat should not linger in the perfecting of their invention—as it is always best to prevent by prompt measures, the troubles of contesting rights. Some may suppose that there is but little benefit in a caveat, but they are much mistaken. It frequently happens with inventors that they are troubled more with some minor point to get their invention perfect than with the general principle of the invention. In such a case, a caveat plain and clear should be immediately filed to allow time for experiments to perfect the whole invention. There is but little extra expense for a caveat and in such a case as the one last mentioned, it is not only prudent to file a caveat, but it is more than prudent—it is an act of necessity as it lays at once the foundation of the Patent Claim.

Ventilation.—Health.

We cannot too frequently advert to this subject, as we daily and hourly perceive violations of all the physical laws in the prosecution of business, or in the search after wealth. There is scarcely any use, it may be said, of bringing any more facts to bear upon this subject as every person is well aware that well ventilated apartments conduce to health and improper ventilation is the cause of many diseases. This is indeed true, but in a city like this where so much indoor work is carried on, and where small and ill ventilated apartments seem to be the order of the day, we believe that it is our duty to point out those evils that are injurious to the well being of man, especially those that are connected with mechanical pursuits. A hot atmosphere is not so injurious to the human system as many suppose. It is only the want of fresh supplies of air that is hurtful to health. The oxygen that is in the atmosphere is the grand renovator of the system. It supplies the lungs with that proper support necessary for the operation of the human machine. Take away from the atmosphere its vital principle, oxygen, and we then inhale a deadly poison. Every respiration made by a man working in a confined apartment has a tendency to poison the air which surrounds him, for by the act of breathing the oxygen is mysteriously separated from the nitrogen of the atmosphere, and carbonic acid gas and nitrogen expelled from the lungs. We may well consider then, that an operative working constantly in a small or large room, if it is ill ventilated, is daily consuming himself. This is not a visionary view—we have seen with our own eyes too many sad evidences of ill ventillated apartments. It is very easy for some writers to say, "if those who are required by their occupation to work indoors, would be persuaded of the absolute necessity for a free circulation of good air during their labors, we should not find so many sedentary operatives complaining of loss of appetite, distressed sensations, and a nervous and irritable state of the feelings." But those who work *indoors* have not always the choice of the proper ventilation necessary to their health. We know a Piano Factory in this city, (and perhaps they are all alike,) where some of the apartments are kept so warm and are so ill ventilated, that the health of no workman is safe who labors therein. The apartments are kept warm and dry for fear of moisture that might injure *parts* of the instruments to be manufactured. It may be somewhat startling to those who thread the notes of the inspirating *piano* to know that some operatives who were engaged in its manufacture, wrote within the sounding casket, in reference to their own fate "memento mori." There are hundreds and thousands of operatives in this city, and in every city, who labor in ill ventilated apartments, over which they have no control—necessity compelling them to their daily tasks. But those who can have well ventilated apartments and do not use the means to ventilate them, are certainly culpable in the sight of their Creator.

Claim of Woodworth's Patent.

As we have had a number of communications relative to this patent, we publish the following as a general answer to the inquiries made.

CLAIM.—The employment of rotating planes substantially such as herein described, in combination with rollers or any analagous device to prevent the boards from being drawn up by the planes when cutting upwards, or from the reduced or planed to the unplaned surface as described. And also the combination of the rotating planes with the cutter wheels for tonguing and grooving, for the purpose of tonguing and grooving boards, &c. at one operation as described. And also the combination of the tonguing and grooving cutter wheels for tonguing and grooving boards at one operation as described. And finally the combination of either the tonguing or the grooving cutter wheel for tonguing or grooving boards, &c. with the pressure rollers as described.

Old Independence Hall.

Gas has just been introduced into this sacred old Hall, Philadelphia. The old chandelier that shed its candle light upon the sages of the revolution, has been slightly altered for the burning of the gas: but not in its material and essential parts. The room itself is at present worth a visit, being hung in mourning as a token of respect to the memory of John Quincy Adams.

Economy of Power in Cotton Factories.

(*Concluded from our last.*)

However essential to economy of power may be a substantial building, a skilful plan and arrangement of shafting, their advantages may be more than counterbalanced by an injudicious selection of machinery.

It may be justly said of the different kinds of cotton machinery in use, "their name is legion," and a person incapable of judging for himself respecting their merits, is apt to become bewildered by the representations of machine makers and their agents whose "vocation" is to extol the *works of their own hands*. Within the past four years several committees of gentlemen from Southern cities have traversed the Eastern and Middle States with the view of obtaining information as to the best machinery for manufacturing by steam power at the South. Being unable to judge for themselves by inspecting the machinery in operation, they had to ask the opinions of Mr. A, B, C and D,—all "great guns" in the cotton machinery line. Each *gun* would give a different *report*, and the only criterion for determining their claims to attention was the *length* of their *fire*.

None but a practical manufacturer, unbiassed by any *machine shop alliances*, is competent to give advice in the matter. Having had some little experience of nearly all the cotton machinery in common use in this country, and being entirely unconnected with any machine maker, we feel conscious of no motive for penning our preferences but the merits of the machine itself.

Beginning with the preparation department we shall proceed to notice the machinery that ought to be selected for a mill where economy of power is of great importance.

THE WILLOW.

This machine is principally intended to open the tufts of cotton preparatory to its being cleaned by the picker. Although the willow should separate much of the sand and other foreign matter from the cotton, this is an *incidental*, not a primary object of the machine. "Mason's Whipper," accomplishes this end better than any now in use. It costs but 75 dollars—occupies about as much room on the floor as a common sized tea box—can be driven with a slack two inch belt—is easily kept clean (an important recommendation,) and never gets out of order if its bearings (four in number) are properly oiled. One of these can do work for 12,000 to 15,000 spindles on No. 28 yarn.

For fine work the cotton should undergo two operations of the machine. As the power consumed by different picking machines only varies to any extent according to the quantity of work they produce, we shall proceed to notice,

THE CARDS.

There are no cards in this country that will produce an equal quantity of work and consume so little power as the "Double doffer Cards," made by the Matteawan Co. Ten of them working as single cards will make superior work to 16 common cards working as breakers and finishers.

Double carding for all Nos. below 40's is at variance with economical principles either of power or labor. Nearly all the mills at Lowell, Massachusetts, use breakers and finishers or double carding—a piece of extravagance which is only compensated by their large capital, and the *slavish length* of their working hours. Single carding was introduced in all the mills of the York Manufacturing Co. at Saco, Maine, some years ago, and was attended with an immense saving of power and labor, as well as an improvement in the quality of work.

THE DRAWING FRAMES.

The Drawing Frames are used merely to straighten the fibres of the cotton, and compensate, by doubling several slivers together, for the inequalities of spreading at the picker. When this object is attained any further action of the drawing frame upon the staple is a positive injury. I have seen good 25's yarn made with only 64 doublings, and twice drawing. Many mills for no finer Nos. double from 3000 to 4000 times and draw 4 times.

The best Drawing Frames are made by the "Water Power Company," of Saco, Maine.

THE SPINNING MACHINES.

The Spinning Machines are perhaps the most in point of economy in a cotton mill.—There are three kinds of self-operating Mules viz. "Sharp & Robeto's," "Mason's," and "Smith's" The principal throstle frames are the "live spindle," "the dead spindle," the "ring and traveller," Danforth frame and Gore's patent or tube frame. Manufacturers differ in opinion regarding the merits of Mules and Throstle for spinning yarn. Some prefer Mules for both warp and filling, others prefer Throstles. Experience proves however that throstle yarn is better for warp and mule yarn for filling.

The best throstle frames are "the ring and traveller," and Smith's is the best mule.

The merits of the "ring and traveller" frame have been long acknowledged, but some practical difficulties consigned it to a temporary oblivion, which recent improvements have dispelled and rendered it capable of producing an elegant thread, and a larger quantity with the same consumption of power than any frame yet in operation The three kinds of mules mentioned were put in operation in the same room at Great Falls, N. H., for the purpose of testing their respective merits. An accurate account of their products and the quantity of waste made was kept and the result demonstrated the superiority of Smith's Mule over the others.

W. MONTGOMERY.

The American Institute.

This Institute has been charged with gross extravagance and mismanagement. Whether this be so or not we cannot tell, although we must say that there have been more than one of our correspondents who justly charged the Institute with partiality in the awarding of Medals. Many suppose that a gold medal is a mark of the most superior invention as awarded for that purpose by the Institute, but those who paid for the gold received the medal, and certainly this is a sublime consolation to receivers of the medals. They cannot say it was charity—it was their own inherent right. This is at least some consolation to those who may have looked coldly on a silver *ducat*, or a *diploma*.

Maker of the Infernal Machine.

It will be recollected that an attempt was made a few years ago, to assassinate Louis Phillipe, by a man named Fieschi, with an instrument called an "infernal machine," which consisted of a number of gun barrels, so adjusted that they could be all discharged simultaneously. In a cellar not far from our office, there is a man who earns a living as a tinsmith. This gentleman, is the same who constructed the aforesaid internal machine for Fieschi, and has lived here for many years. He is delighted with the course of Events in Europe, and says he is a much more independant and respectable man than the ex-monarch of France. While he is contented and satisfied by making a decent living, by making lamps and street lanterns, the other had to cut and run in disguise

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For the Scientific American.

Reaction Water Wheels.

(Concluded from our last.)

Again, Mr. B. asks, " if a body B, under motion should impinge or press against the body C, in a direct line or obliquely, and thus communicate its momentum to C, would C owe its motion to action or reaction ?" This is a simple question susceptible of as simple an answer, and cannot well enlighten the public on the subject of " reaction wheels."

I have seen experiments made with reaction wheels so minute that the twentieth part of an ounce of momentum would be indicated, and in these developements it was clearly shown that the same wheel running free without any load, would attain a greater velocity when running by reaction alone than it would when the percussion was combined with its reaction. But when the percussion was combined with its reaction the wheel would maintain a greater working velocity and indicate a great increase of power.

Again Mr. B. says : " Now it is clear that the action and reaction are equal, and no greater power can be obtained by the same agent by reaction than by action. The mechanical effect of a reaction wheel (rightly constructed) must be the same, but the coefficient, or power of many wheels supposed to be driven by reaction is from 6 to 8 of the whole power of the water yielding *double* the amount of power to a percussion wheel. Now I would ask in reply, whether this great gain of power is not the effect of combining percussion with reaction, and thereby creating a combined power. It is certainly common to see a horse and an ox working the same machine

Again Mr. B. says : " I know of such wheels in use yielding *double* the amount of power to any reaction wheel in existence."—Now this assertion I do not think is sustained by facts. I believe that it is the general acknowledged opinion that the overshot wheel returns the greatest co-efficient of all the power of the water expended, and it must be a good one which will return 75 of the whole power. In a Report of a Committee on Science of the Franklin Institute of some experiments made with Mr. Parker's Reaction Wheel they establish a co-efficient for it of 72 of the whole power. I have seen even greater results. It would be of vast importance indeed were it possible to produce a surplus co-efficient of 44 over the whole power expended, which must be the case with a wheel " yielding double the amount of power to any reaction wheel in existence."

Mr. Bishop charges Mr. Parker with " obtaining those answers (contained in the report of said committee) to subserve certain purposes and not to enlighten the public mind on a subject upon which they needed light." I have no doubt but Mr. Bishop would change his opinion were he acquainted with Mr. Parker. No person can point out a man in existence who has done more to enlighten the public mind on the subject of reaction wheels than Zebulon Parker, of Ohio, or who has made greater improvements in the application of Hydraulic Power. E. C. A. C.

Peoria Co. Illinois, April 1848.

Last Machine.

Publishers Scientific American.

GENTLEMEN.—I noticed in your paper of the 22d ult. a communication from Mr. James Johnson of your city, in which he makes some inquiries in regard to a machine for turning irregular patterns, which from his language he seems to have heard of as being invented by Mr. Elbridge Webber or Mr. W. M Davis. In answer to the same I would say that Mr. E. Webber of this place, has succeeded in perfecting a machine for the above purpose, which in the opinion of many of our best mechanics will accomplish the long desired object. I understand that Mr. Blanchard has heretofore been able to overthrow all attempts that have been made by divers ingenious mechanics to evade his patent, by being able to make in his machine from their model a thing like that which they desired to make from said model in their machine. By this plan of Mr. Webber's, Mr. Blanchard cannot make a thing like the thing which the model will cause to be made in this machine out of the model used, any easier than he can out of a stick of cord wood. This machine of Mr. Webber's also obviates a serious objection to Mr. Blanchard's machine, as his model and block hang in a swing frame which as it describes a part of a circle causes an imperfection in the thing turned which has to be remedied by hand, whereas in Mr Webber's machine the model and block move in straight lines. Mr. Webber has also an improved method of chipping from the block, which together with various other improvements united in his machine, make it in my opinion altogether superior to any now in use. Notwithstanding the broad ground which Mr. Blanchard has been allowed to enclose by a special act of Congress giving him a second renewal, it is hoped that he will not be allowed to make a turnpike of it and hold the office of tax-gatherer.

I understand from Mr. Webber that he expects to be able to show you a machine upon his plan in a few weeks.

Yours respectfully, C.

Gardiner, Maine, May 2, 1848.

For the Scientific American.

Terrestrial Magnetism.---Central Heat.

Many philosophers have firmly believed that the centre of the earth was a great fire and that the inhabitants of our globe lived walked and slumbered on the crust of a huge furnace of which Vesuvius, Etna, Stromboli, and many other volcanoes were but the smoke pipes. These views have lately been yielding to others more rational and more in accordance with many terrestrial phenomena which the igneous theory as it was called failed to explain. All the phenomena attributed to fire may be produced by electro-magnetic currents. It is difficult to imagine fires unsupplied with the oxygen of the atmosphere ; and a singular fact has come to light with regard to the earthquakes in South America, based on observations continued during nine years : the oscilllations are from east to west, while the rumbling sound by which they are accompanied, travels north and south, showing the influence of some law similar to that by which magnetism is governed. " Even the cause of the variation of the needle, mysterious as it has hitherto appeared to be, may probably be referred to the relative energies of the opposing electrical currents, which are perhaps subject to occasional modifications ; and the appearance of earthquakes and volcanic action from time to time seems to countenance the probability of any such changes."

Taking the ocean as the connecting medium between pole and pole, it is the universal menstrum whence all the variety of materials that constitutes land is derived. The great ocean currents are from south to north, which, with the upheaval, and subsidence of continents and islands, the changes of level continually going on, may be referred to the action of magnetic currents passing from one to the other pole. Everywhere, in fact, there appears to be a tendency towards the north, or pole of decomposition, from whence the decomposed substances are carried back to the south, to take on new combinations and resume their part in perpetuating the operations of nature. In various parts of the world, the latitude of places is found to be slowly moving northwards, at the rate of from ten to twenty minutes in a century. It is a generally received fact, that the climate of Europe is colder at the present time than in the earlier periods of history. The first settlers in Iceland, described it as fertile in many parts, and covered with trees, and there is evidence that the vine was cultivated where now is nothing but an icy desert. With regard to the material diminution of temperature in the northern hemisphere, " we know that there are constantly some small variations in the respective geographical positions. And while in the north we find fossils, and other remains of the torrid and southern regions, we never find in the south any but those of the adjacent seas, or peculiar to the locality.—In the coal beds of Melville Island, fossil plants are found which required tropical heat and light for their growth, and could not possibly have flourished through the cold and six months night of the arctic regions. An island or continent moving from the south would naturally carry its sponges, ferns, corals, and animals to the north, modified by the changes of temperature through which it had passed ; and the immense deltas of floating wood in process of formation at the emboucheure of the Mississippi and other rivers, to be alternately elevated and submerged during the ages of transit, would seem to be the means of providing an endless succession of coal-beds for the inhabitants of the chilly north.

Theory of Population.

A recent English writer on this subject has brought forward facts and reasonings that have been entirely overlooked by writers on political economy, and which will forcibly strike every thinking mind He assumes that if any species, animal or vegetable, receives an immoderate supply of nutriment, or becomes plethoric, it does not produce itself but sparingly, if at all—that if very moderate aliment be administered, they become prolific and reproduce themselves.

He says : " It is a familiar and well known fact that over stimulation, by an excess of manure, causes most of the grains to fail in producing seed, and to cause the single flowering plants to become double, by a transformation of stamens into petals, in which case they are always seedless. It is exceedingly rare that you can find poor, healthy and laborious parents without an excess of offspring ; indeed, " children, the poor man's blessing," has become an adage. Look into the by-ways and alleys of towns and cities, and into the mansions of the wealthy and high livers, and the indications of this theory are visible.

" On this assumption the decrease of the Peerage and Baronetage of England is at once accounted for. How often it occurs that the large estates of the oldest families become extinct in the direct line, and some discarded offshoot, perhaps once a poor emigrant to this country, succeeds to the honors and hoarded millions of an ancient and time-honored name.

The Quaker families are found to be diminishing in numbers. They are almost exclusively, from their peculiar tenets, that enforce prudence, industry and economy, either wealthy or above want—and consequently never find it necessary to buffet the storms of poverty and adversity, and from the necessity of intermarriage among themselves, increase the influence of non-productiveness.

Look at poor, famished, starving Ireland, evidently the most prolific country on the globe ; their immense emigration, disease and starvation, does not keep pace with the births. The same reasoning applies to the blacks at the South ; the whole navy of the United States could not remove and colonise them as fast as they increase. China is overstocked with population, merely from the want of food, or from their inability to procure a rich and generous diet, or even plenty of any kind.

" The whole animal creation is subject to the same laws. Every farmer knows that a pampered, high fed and fat animal, which requires no exercise to procure its daily food, is not in a fit state to produce its kind ; in fact it is barren. These facts all go to prove that constant labor, and a stinting of nutritious food, even to a state bordering on destitution are favorable to the reproduction of all organized beings ; and the opposite state, of high and generous living, where the pallid appetite is provoked with the most pungent provocatives, or any state approaching to it, is unfavorable and often unfavorable to that desire of offspring that is inherent in every human breast."

It is very easy to make out a very strong case from a few facts—a case apparently impregnable to overthrow. But let an array of facts be presented on the other side and the fabric becomes apparently founded upon sand. This is our opinion in relation to the above theory. The Highlands of Scotland are poor to a proverb, both in the comforts of life and in the reproduction of the species. Does the half starved Esquimaux increase rapidly, or the miserably fed Russian serfs ? Nay do we not all know that as the mass of the people in any land are comfortably fed and clothed, so in proportion is life prolonged, aye, and life increased too.

For the Scientific American.

The Patent Office.

Mr. Editor :—I am a constant reader of your valuable paper, and am always pleased to meet in your columns with any article expressing sympathy for inventors.

You have recently alluded to the importance the bill now before Congress, for the appointment of additional Examiners in the Patent Office. The importance of such an alteration of the present system, as to facilitate the business of the office, is certainly not only desirable, but due to the hundreds of Inventors who desire to avail themselves of the protection guarantied by the Patent Laws.

I am informed that the time now devoted to the business of the Office by the Examiners and Assistants per day, is but *five hours* ; if this is so, let it be increased to *ten hours* and with reasonable allowance for relaxation, the efficient force will be nearly doubled Many of the hard working inventors are compelled to toil *fourteen hours* of the twenty four with but a scany support, and it may surprise them to learn that that the respectable Examiners at $2500 a year devote but five hours out of the twenty four in attending to duties for which they are well paid.

I agree with you, that none but men of superior talents and sterling integrity should occupy so important a position, but surely it is but just that their time and talents should be eutirely devoted to the work.

You will confer a favor on several of your subscribers by informing them, through your columns, whether I am rightly informed in this matter. INVENTOR.

[We would inform " Inventor" that the corps of the Patent Office labor frequently *twelve* hours per day, although not required to do so by law, and we have lately received information from Washington of their continual labor for twelve hours per day during the past two months Our views accord exactly with those of " Inventor," with but one exception. We believe that nature claims only eight hours daily labor from man and that the majority of our working people labor three and four hours per day more than they should. The business of the Patent Office has increased for years at the rate of thirty per cent, without any addition to the examining staff. This is very unjust, not only to the members of the Patent Office, but to inventors and the cause of science. Congress will banter for days upon some unimportant—sometimes very foolish point, and yet bestow but little attention upon matters of invention. This should not be.—ED.

A Republican Blacksmith.

Amid the many curious scenes that the European revolutions have caused, the following is too good to be lost. It should be immediately dramatized

" The Elector of Hesse Cassel (a small state with about 700,000 inhabitants) was deaf to all appeals from the people. The mob therefore determined to use force. Seeing this he fled into his gardens and attempted to escape. He was caught, however, by a gigantic blacksmith, who carried him back to his drawing room. The man then locked the door, and demanded compliance with the popular demands. The Elector still said no! The blacksmith, then, by way of giving an example of physical force, smashed with one blow of his arm a highly ornamented table into atoms. This done, he shook his fist at the Elector, and told him he should never leave the room till he yielded all that was required of him. The result need hardly be told. The Elector consented. The blacksmith, however, was a practical man, and was not disposed to trust the promise of a prince, without fortifying himself with collateral evidence. He compelled the Elector to write a proclamation. " Willingly according to all his people's just requests." This was forthwith promulgated. Thus by one brawny arm, and the rough good nature of its possessor, a State was saved. The Elector and his people are now on the best terms."

Miss Freeman the celebrated Boston Clairvoyant has made a grand mistake about a Mr. Marshall, who was missing, who she said was in New Orleans, but has since been found dead near the Maine Railroad.

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TO CORRESPONDENTS.

"C. R. of Vt."—Lead is the most durable for coffins to be placed in vaults. But pine may be kyanized and made to last as long as you desire. This is done by putting the pine boards into an air tight chamber and extracting all the the air by means of an air pump, and to let in by a pipe from the top of the chamber a solution of corrosive sublimate so as to saturate the wood thoroughly. It is then taken out and dried. Another and more simple plan, where air tight chambers and air pumps are not conveniently to be had, is to take a box or tub and make an aperture in the side just sufficient to admit one end of the board which must be inclined at an angle so as to facilitate the process. Then pour into the box or tub the liquid until it covers the end of the board some inches, and in a short time it will penetrate to the other end of the board and the kyanizing be complete. Wood thus prepared has been buried for a number of years and found to be uninjured. Pyroligneous acid or sulphate of copper may be used instead of corrosive sublimate.

"S. V. V. of N. J."—We would advise you to try the experiment first, before you apply for a patent and we are certain that you will save yourself some money, as its utility is more than doubtful in our eyes.

"J. W. of Mass."—You will find in Tredgold and Hodgekisson's experiments all that you desire relative to the strength of iron pillars. The problems you must work according to the data found there. This labor you must perform for your own benefit.

"J. A. H. E. of Vermont."—The expense of an engraving would be six dollars, and the cut yours to be used in printing bills, &c. Your invention is good, excellent, and the engraving would immediately bring it into notice. The best advertisement in the world.

"E. A. B. of Mass."—Your trowel would undoubtedly be a benefit to yourself and others if manufactured. Small inventions, such as improved tools are the best of all paying inventions, from the fact of so many of them being used. "*Ichabod*" is wrote upon the Scientific Mechanic.

"R. H of Chesterfield Mass."—We have answered you by mail.

"J. M. of R. I."—We will answer in full by mail.

"J. W. O. B. of Maine."—The right of an inventor to sell his invention two years before a patent is secured, does not invalidate the patent. This is clear. But in the sale of any invention it must be with the full and unequivocal understanding that measures have been taken to secure a patent. There must be no doubt upon the subject of the invention *reserved*. Judge Nelson's decision is not technically in its parts before us, but surely it must have been based upon some minor point of the transaction of sale. We will answer you soon by mail

"L. K J. of N. Y."—See Pambour on Locomotives.

"W. M. of Pa."—It is a good overshot wheel that gives 70 per cent. The vertical or reaction and percussion wheel will answer your purpose well.

"B. C. T. of Ohio."—Get an engraving in the Scientific American, it will only cost $7 for your machine and certainly it will be of ten times that benefit to you. The world knows nothing of your invention at the present moment.

"J. McC of Va."—Argillo, or Agate knobs for door handles are made in Albany N. Y. They are as beautiful as the native stone, they are mostly made of a blue clay found near the manufactory.

"S. F. K. of Geo."—Use the acetate of lead (sugar) for the first preparation of the cotton yarn, wring them out of this, and then put it through a solution of the chrome. This will make a good yellow at the rate of nine ounces of lead to three ounces of chrome. Finish in the lead and wash. If you don't do this, the goods will be brown spotted.

"T. S. I. of Ohio."—Brunell is the famous French Engineer who built the Thames Tunnel. His experiments were read before the Royal Society in 1844. A patent was granted in January last to the Rev. Mr. Wilson of Greenock, Scotland, for improvements in engines to be propelled by explosive gases. It will be of no benefit to him. Nitrogen is the principal gas developed in the explosion of gunpowder. The name is derived from nitre.—You will find it difficult to *manage*, we assure you. In reference to your drawing and description, you had better go where you can get suited so charitably.

"H K. of Conn."—We can furnish you with a copy of Gilroy's work on Manufactures for $3,50.

"J. K of St. Louis, Mo."—We regret being unable to furnish you with a copy of vol. 1. We have sent you vol. 2, and all the numbers of the present vol. that are yet published, and credited you with $2 for vol. 4.

"I. A. of Pa."—Your drawing has come to hand and an engraving of your invention will appear in the Scientific American of May 27.

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Great improvements have lately been made in the manufacture of this article, for a supply of which until very recently, we were dependant upon Russia. But our course is upward and onward. There are now in the vicinity of Baltimore, three factories, which used last year in the manufacture of this article $246,659 worth of raw cotton, and paid $90,102 in wages, and manufactured 2,000,000 yards of Duck.

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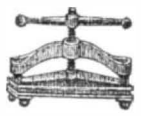

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DIETZ, BROTHER & CO.

Washington Stores, No. 139 William street, New York, (one door south of William st.)

ARE manufacturing and have always on hand, a full assortment of articles in their line, of the following description. which they will sell at wholesale or retail at low prices, for cash:

Solar Lamps—Gilt, Bronzed and Silvered, in great variety.
Suspending Solar Lamps, gilt and bronzed.
Bracket do do do
Side do do do
Solar Chandeliers, do do 2, 3 4 and 6 lights.
Camphene Suspending Lamps, gilt and bronzed.
do Bracket do do
do Chandeliers do do 2, 3, 4 and 6 lights.
Girandoles—Gilt, silvered and bronzed, various pats.
Candelabras do do do
China Vases and Bohemian Glass Vases do
Hall Lanterns, a large assortment, plain and cut.
do with stained and Bohemian Glass Lights.
Lamp Wicks, Chimneys and Shades of all kinds.
Paper Shades, a large assortment of new patterns and styles.
OILS—Sperm, Whale and Lard, of the best quality
Superior Camphene and Burning Fluid.
November 29, 1847. d18 6m

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THE undersigned have been appointed Agents by the American Gutta Percha Company, and are now in readiness to furnish Bands and Belting of any size or length, at the following

SCALE OF PRICES PER FOOT.

Inches.	Cents.	Inches.	Cents.	Inches.	Cnts
2 :	14	5 :	38	9 :	71
2 1-2	17	5 1-2	40	9 1-2	73
2 3-4	19	6 :	45	10	80
3 :	20	6 1-2	49	10 1-2	85
3 1-2	26	7 :	57	11 :	90
3 3-4	28	7 1-2	58	11 1-2	95
4 :	29	8 :	63	12 :	100
4 1-2	35	8 1-2	67		

All Bands of extra thickness will be made by special agreement. Light Bands for Cotton Mills furnished at short notice.
Address MUNN & CO. New York. m18

Useful Publications.

THE undersigned have made such arrangements with the Publishers of Ranlett's Architect and Ewbank's Hydraulics, that they are enabled to furnish them in any quantity at the Publisher's prices.—Ranlett's Architect is acknowledged by all to be the best work of the kind ever published in numbers, and is afforded at the low price of 50 cents per copy. Ewbank's Hydraulics is an invaluable work on the philosophy of Water and its uses as a motive power, and should be in the possession of every Millwright, Plumber or Manufacturer, price 25 cents a copy, 5 numbers already issued, and 3 more yet to be published. Address MUNN & CO.,
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Lap welded Wrought Iron Tubes
FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.
THOMAS PROSSER, Patentee,
d26 28 Platt street, New York

Johnson's Improved Shingle Machine.

THE Subscriber having received Letter Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use.
Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

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To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information cencerning them had.

Patent Rights for different States, Counties, &c. for sale, as above. m25 6m*

"Lamp Depot."
Nos. 134 and 136 Fulton st., Sun Building.

J. O. FAY has just received from the manufactory of J. G. Moffett, a full and most splendid assortment of Solar Lamps for Parlors, warranted perfect; unequalled in style and beauty of finish—new patterns. the handsomest ever offered for sale, and the cheapest Lamp Store in New York m25 3m*

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Automaton Extraordinary.

A great number will readily remember what a sensation was created in Europe two years ago, by the appearance of an automaton invented by Professor Faber, of Munich, Bavaria. It could articulate a number of words and perform some very extraordinary feats. The Professor spent some 27 years in the construction of his image, and though it exhibited much ingenuity, still we could not but consider that the Professor had wasted for 27 years his genius and time and wealth upon a trifle light as air. Mechanical ingenuity nevertheless always excites attention and regret is mingled with admiration for the productions of man although no result of any utility or benefit to the world may be the consequence. Who has not heard of the German philosopher who in his desire to create a fel low mortal, created his own evil genii. A late Augsburgh paper announces that Dr. Lube of that City, has invented an artificial man, which throws Professor Faber's in the shade, and seems to be almost life itself. A visitor who writes to the Augsburgh German Gazette, was invited with a friend to visit the Doctor's Sanctum. They beheld him seated at a key board similar to that of a piano forte, and nearly in the centre of the room was a fashionably dressed young man, whom the Doctor introduced as a Mr. Eisenbrass, who wished the visitors good morning, and remained standing until they were seated. At first the conversation was upon the ordinary topics of the day—Mr. Eisenbrass joined in with an occasional remark, but to which the Doctor paid very little attention, and kept amusing himself with the keys of the instrument, at which he was seated yet without producing any sound. This surprised the visitors, and one said, Doctor your instrument does not seem inclined to be musical at present. This brought a laugh from the Doctor, which was echoed by Mr. Eisenbrass, in such an unearthly and comical manner that the visitors had to laugh also, although they felt the laugh to be at their own expense. As soon as the visitors became calm the Dr. rose from his seat, and taking them calmly by the hand said, "Pardon me, my dear friends for having played an innocent prank upon you.—Mr. Eisenbrass is the Automaton I invited you here to see; and being the first who has seen it, I could not resist a sort of paternal desire of showing it off, as fond parents always do their first born children. They looked at the Doctor, then at Mr. Eisenbrass, and again at the Doctor, to see if he was not quizzing. There sat Mr. E. immoveable, with his eyes fixed on the floor, while the Doctor seemed almost bursting with delight. They looked again. "I see," said he, "you are incredulous, let me convince you," and seating himself at the instrument again, and touching the keys, Mr. E. immediately became animated and laughed and talked quite fluently.

The Doctor than rose and explained the whole affair. When Professor Faber completed his speaking automaton Dr. Lube conceived the idea of constructing an artificial man, and placing within it a modification of the apparatus of Professor Faber, to be operated by voltaic electricity, but intended to imitate to a greater extent, the power of speech than the Professor had done. The idea once conceived, was immediately acted upon. The bones of a human subject were procured and clothed with a complete muscular system, composed of vulcanized caoutchouc. The consummate anatomical knowledge of Dr. Lube enabled him to do this with great success, at the same time adding a perfect system of nerves made of fine plantinum wire covered with silk. It is undoubtedly known to most of our readers that the muscles of animals act by an enlargement and contraction in the middle, produced by the will acting through the nerves. These efforts are imitated by placing in the centre of each muscle electro magnets, with delicate machinery attached, to be worked by galvanic currents through the platinum wires or nerves, which were connected with the battery, and the key-board of the instrument above referred to. So all that was necessary to produce a certain action in the figure or make it give forth particular sounds, was to touch the required key—as in certain descriptions of Telegraphs and the required result was sure to follow. As a matter of course, the accomplishment of all this was a matter of no small difficulty and ordinary minds would have shrunk from undertaking it. But Dr. Lube, with a zeal and perseverance worthy of all imitation, has mastered every obstacle, and produced a work the most extraordinary, ever constructed by mortal man.

The Fiery Shower.

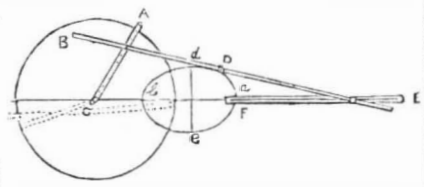
On a plate put a number of any kind of seeds, grains of sand, or brass dust. The conductor being strongly electrified, those light particles will be attracted and repelled by the plate, suspended from the conductor, with amazing rapidity, so as to exhibit a perfect fiery shower.

Another way is by a sponge that has been soaked in water. When this sponge is first hung to the conductor, the water will drop from it very slowly; but when it is electrified, the drops will fall very fast, and appears like small globes of fire, illuminating the basin into which they fall.

Electricity from Leather Bands.

Much electricity is often developed by the action of bands passing over pullies in factories. Electricity lies inert in almost every substance until disturbed by friction, hence the reason for the electric developement by the action of the band. By presenting a piece of leather two feet long, with one end slightly curved, to the band that developes electricity, a succession of brilliant flashes and jets is immediately produced, giving a very perfect imitation of the aurora light.

Instrument for Drawing an Oval.



The above is a drawing of a cheap and simple instrument, by means of which an oval curve may be described sufficiently accurate for ordinary purposes. It is made use of by some artists and engravers. A C, is an arm or radius moveable on the fixed centre C; E F, is a bar of wood or metal having a groove in it, in which slides a cylindrical pin fixed near one extremity of the rule B, the other end B is attached to any part of the radius A C, by any convenient contrivance. If now the radius A C turn around C, by which the end B of the rule is made to describe a circle, the pin causing the other extremity to move backwards and forward in the straight line of the groove; a pencil fixed anywhere in the rule B, as at D, will describe an oval curve which sufficiently approaches to a true ellipse, as not to be distinguished from it by an inexperienced eye. The longer axis *a b* will always be equal to twice the distance from C to B, or the point where B is attached to A C, wherever the point D may be between B F, consequently, the distance C B being made equal to half the given axis, the point D must then be moved through the vortex of the shorter axis *c d*: this adjustment is easily made by a trial or two. The longer the rule B, the more nearly will the curve resemble a true ellipse.

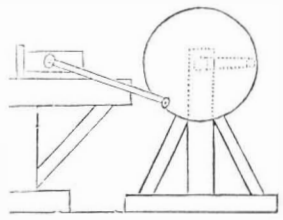
Steaming and Washing Colored Goods.

A new plan is now adopted for steaming in colors. The calicoes are put into bags, in place of being rolled on cylinders, and hung in the steam chests. By this operotion some trouble is saved, and many think it more effective.

It is calculated that the heat produced by respiration in 12 hours, in the lungs of a healthy person, is such as would melt about 100 lbs. of ice.

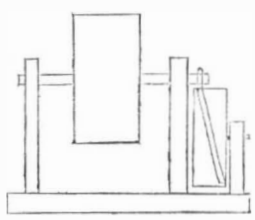
MECHANICAL MOVEMENTS.

Rectilinear from Circular Motion.



This cut exhibits a mode in which a rectilinear is communicated from a circular motion, and the reverse of this is to be observed in the operation of every horizontal engine.—The rod here connected with the plane on the bench is attached near to the circumference of the wheel and thus performs the same functions as a crank—which is represented sectionally by the dotted lines. This wheel may be called an eccentric and it shows the mode of imparting a motion very suitable for polishing marble or granite, but not for cutting stone, or planing either iron or wood, as the dip and lift motion has been found to be the best for these purposes.

Alternate Traverse in a Revolving Cylinder.



This arrangement for producing an alternate traverse motion in a revolving cylinder is done by a flange piece on the shaft to the right hand of the larger cylinder which takes into a groove in the smaller one, which revolving slowly on its axis necessarily traverses the larger shaft at every revolution. This motion is sometimes called the *screw cam*.

Discovery of Hæmatinon.

The Hæmatinon of the ancients, which has for ages excited the admiration of the world, and perplexed the experiments of science, has been discovered by Dr. Max. Pettenkofer a celebrated chemist of Munich. At a meeting of the Royal Academy of Sciences, the learned doctor stated the progress of his discovery, and laid before the society several specimens of the Hæmatinon made by himself, and which could not be distinguished from the antique. It is the same that is spoken of by Pliny, in his Natural History, and which he describes as a glassy substance, highly prized by the ancients. Manifold have been the endeavors to imitate this splendid substance, which is found in Pompeii, in Mosaic pavements, in the Mural decorations. and in unformed houses. The fracture is perfectly conchoidal, on which account Pliny compares it to Obsidium; it is harder than glass, which it readily cuts, and therefore takes a very high polish; the color is a very splendid vermillion. When melted it becomes a blackish green, and nothing restores the original magnificent red. In Italy many endeavors have been made to imitate it, and in some of the Mosaic fabricsa beautiful Porporino has been made, shaded with gold, and which, though excessively expensive, cannot compare with the Hæmatinon. Dr. Pettenkofer's success at least, is applicable not only to the red Hæmatinon, but to the purple, green, &c., the effect of which is so magnificent, shedding a lustrous light, which seems to issue from beneath the surface of the color. The King of Bavaria has taken much interest in the progress of the experiments, and ordered the immediate application of the brilliant substance upon a public monument which is to be executed. It can be employed in manifold ways, in mosaic floors, mosaic paintings, mural decorations, trays, vases, ladies' ornaments, &c.

Hydrophobia is said to be cured by the cold water remedy in Germany. The *douche* was applied to the head of a patient, who was entirely cured. The warm bath, wet sheet, *douche*, &c., are the usual methods with the disease, and remarkable success is reported.

Ice.

It is a curious fact that in transportation of American ice, even in the heat of summer, it is not sensibly reduced in bulk. This may be attributed to two circumstances—the magnitude and quality of the ice, and the manner in which it is packed. Ice frozen upon deep water is much more compact and solid than that which forms on the surface of shallow lakes and streams, and, therefore, when an equal surface is exposed to the atmosphere the former melts more slowly than the latter. American ice is famous throughout the world not only for its solidity but for its magnitude, being allowed to freeze until it attains 12 inches in thickness. Ice for shipping is packed in thin air tight timber boxes with straw and hay. In this way it is conveyed without loss, to the most distant quarters of the globe.

How to Enlarge Vegetables.

A vast increase of food may be obtained by managing judiciously, and systematically carrying out for a time the principle of increase. Take, for instance, a pea. Plant it in very rich gronnd, allow it to bear the first year, say half a dozen pods only, remove all others save the largest single pea of these. Sow it the next year, and retain of the produce three pods only, sow the largest one the following year, and retain one pod, again select the largest, and the next year the sort will by this have trebled its size and weight. Ever afterwards sow the largest seed, and by these means you will get peas, or anything else, of a bulk of which we at present have no conception

Malleable Iron and Steel.

The process of converting cast iron to malleable iron and good tempered steel, consists in stratifying the cast articles in cylindrical metallic vessels, with native oxide of iron, and then submitting the whole to a regular heat in a furnace built for the purpose.

To Clean Steel and Iron.

One ounce of soft soap, two ounces of emery, made into a paste; then rub the article to be cleaned with white wash-leather, and it will give a brilliant polish.

Salt brine is said to be the best wash for stiff joints in horses. It is also good for hard hoof as it attracts moisture and thus keeps the hoof soft. It can easily be tried by any farmer.

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